The oral operations consist in a removal of the hard palate and exenteration of the nasal content to and including the sphenoid, or of an operation through the soft palate, or beginning on the neck through the base of the tongue to the valeculum and thence to the sphenoid. This latter method necessitates a preliminary tracheotomy but gives a complete view of the desired field. Kocher says that the bucco-nasal method gives the best view of the hypophysis of all the various operations.

The paths that have become most popular of late are the nasal ones and interest us as nasal surgeons more than those just mentioned. They should have as a basic principle the reaching of the posterior wall of the sphenoid with the least possible mutilation to the nose, but with the greatest possible space in transit. The early efforts (Schloffer, von Eiselsburg and Bode) took but little account of the conservation of the nasal contents, but gradually there has developed a desire to perfect the various sub-mucous methods of resection of the septum until we have the superb technical triumphs of T. Kocher and of Hirsch.

The superior nasal routes, advocated by von Eiselburg, Schloffer, Hochennegg, Loewe and Kocher, either include a removal of the anterior and inferior walls of the frontal sinuses together with the middle turbinates, ethmoids and superior portion of the septum,—the operator hugging the cribriform plate,—or simply a sub-mucous resection of the septum in its superior half after entering the nose by clapping back the two sides like swinging doors,—or any procedure between these two. They require a disfiguring operation without giving any better view of the field than do those done by the inferior nasal route, as advocated by Hirsch, Kanavel, West and Cushing, or the lateral route as done by Marschik and Chiari.

Hirsch does a Killian resection of the septum through the anterior nares, with or without a removal of the turbinates, as occasion demands, and carries the resection back to the posterior wall of the sphenoid. Kanavel and West, working from the anterior nares, resect the septum, bone and mucous membrane included, with or without a resection of the middle turbinate. Cushing does the same, entering the nose by lifting the upper lip. The most serious problem is not reaching the posterior wall of the sphenoid, but entering the *sella turcica* with the chisel. After doing the operation a number of times on the cadaver, it becomes apparent that one can very easily enter the skull too high or too low, but if caution is used in a preliminary X-Ray of the region and in not chiseling too far in any direction, but little damage can be done as long as one keeps in the median line. One must keep in mind the fact that the septum of the sphenoid is no guide to the median line of the skull.

Marschik and Chiari have operated a couple of cases successfully lately by making a skin incision from the inner canthus of the eye down to the middle *processus frontalis* of superior maxillary, the middle turbinate, ethmoids, lamina papyracea and posterior portion of the septum are removed, the eyeball being pushed outward during the process: they claim expedition and a clear view of the case, but on the cadaver I have not found any particular advantage over the inferior nasal routes, and the angle at which one approaches the *sella turcica* is more likely to lead to error than if the operator keeps in the median line.

The large number of routes suggested and a limited amount of material to try them out on, show that the last word has not yet been said as to the best operative procedure; but I believe that in the future there will be more of this work done by the intra-nasal surgeon simply because of his skill in handling reflected light and his increasing tendency to conserve the nasal contents and avoid mutilating procedures in all nasal work.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of April the two following meetings were held by the San Francisco County Medical Society:

Section on Medicine, April 2, 1912.

1. Exhibition of a case of Flail-Joint following Poliomyelitis and cured by Arthrodesis after the Operation of Mr. Robert Jones of Liverpool. Dr. James T. Watkins.
2. Case Histories Exemplifying Some of the Complications of Typhoid Fever. Dr. Harold P. Hill. Discussed by Dr. R. L. Wilbur, Dr. G. H. Evans, Dr. G. E. Ebright, Dr. J. B. Frankenheimer, Dr. L. S. Schmitt, Dr. H. M. Sherman, Dr. H. B. Reynolds, Dr. J. L. Whitney, Dr. A. A. O'Neill, Dr. H. P. Hill.
3. Remarks on Bacteria of the Respiratory Tract. Dr. James L. Whitney. Discussed by Dr. L. S. Schmitt, Dr. H. B. Reynolds, Dr. J. L. Whitney.

Regular Meeting, April 9, 1912.

1. Demonstration of a Case. Dr. J. T. Watkins.
2. The Regulation of Hospitals. Dr. Wm. R. Dorr. Discussed by Dr. T. D. Maher, Dr. Geo. B. Somers, Dr. F. W. Birtch, Dr. C. Weil, Dr. L. W. Allen, Dr. R. G. Brodrick, Dr. F. B. Carpenter, Dr. H. J. Kreutzmann, Dr. F. P. Topping, Dr. V. Vecki, Dr. R. Bine, Dr. Wm. R. Dorr.

Doctor Watkins Showing a Patient Who Had Been Treated for a Paralytic Calcaneo-Valgus Following Infantile Paralysis.

By the Operation Devised by Mr. Robert Jones, of Liverpool.

After exhibiting X-rays and photographs of the patient's foot taken before and after treatment, Dr. Watkins said:

I am exhibiting this patient to you to-night sooner after the operation than I ordinarily would, because it so happens that the date of her return to the city for a removal of her cast coincides to the date of this society's meeting.

The operation has proved successful and she will now return home. The probabilities of her returning to us for subsequent demonstration are too small to justify my letting go by this opportunity to show you the results of an unusual operation for an unusually grave sequel of infantile paralysis.

You will recall that one of the principles which underlie the successful treatment of the end results of infantile paralysis requires that motion in a joint which can not be controlled should be destroyed. The reason being that if one can not control the motion in a joint, the limb is compelled to assume postures as a result of use which eventually become permanent deformities. The operation for destroying the motion in a joint was first described by Albert and named by him arthrodesis. It consists essentially in peeling off the articular cartilages and bringing the denuded bones into contact in that position in which we believe that, after union has taken place, the limb will best perform its function. The joint which lends itself most readily to this procedure is the ankle joint. A

number of operations for arthrodesis have been described, the most ingenious of them being those of Goldthwaite, of Whitman, and of Robert Jones. It has been my privilege on previous occasions to demonstrate to you patients whom I had subjected to the Whitman and Goldthwaite procedures. To the best of my belief the patient before you represents the first instance in which Mr. Jones' operation has been employed in this part of the world. Briefly the operation is as follows:

First: The prominent bands of plantar fascia are divided subcutaneously and the foot flattened with the block and hands, or with the Thomas wrench.

Second Step: An incision about three inches long is made at the inner side of the foot and occasionally at the outer side. The soft parts are then lifted up from the bones, both above and below the skeleton; next a wedge of bone is removed from the entire tarsus, with its mid point at the highest part of the arch. This wedge of bone is wider above than below, and at the inner side than at the outer side. Making it larger at the inner side than at the outer corrects the valgus deformity. Closing the space made by the removal of this wedge causes the forefoot to come practically into line with the heel. The wounds are now closed and the foot put up in plaster of paris in this position. Mr. Jones actually binds the forefoot to the tibia.

Third Step: One month later, after union has taken place, the ankle joint is opened by a transverse incision from behind and enough of the astragalus removed to bring the foot at right angles to the leg. At the same time the cartilages are peeled from the articular surfaces of the tibia and fibula. Mr. Jones also shortens the Achilles tendon and the posterior capsule and excises a flap of skin. The foot and leg are now held plantigrade for eight weeks, by which time good bone union will have taken place and the operation will be completed.

This is the operation which has been performed upon the patient before you. She is 17 years old, and since her fourteenth month has presented a flail joint in her right ankle. Upon this she was able to get about fairly well, though the foot was in extreme calcaneo-valgus, until approaching womanhood had so increased her weight as to cause a breaking strain to be thrown upon the soft parts of the distorted member. On reflection it seemed to me that for her particular grade of deformity Mr. Jones' operation held out the greatest hopes of relief. You will now perceive that she stands firmly upon what is in effect a "pedestal" foot. Motion in ankle or mid tarsal joint she will never have, but with this foot she will be able to get about without discomfort and fulfill with assurance her function in life.

Presentation of Case by Dr. James T. Watkins Before the General Meeting of the San Francisco County Medical Society, April 9, 1912.

The patient I am able to show you this evening presents an aggravated result of a not unusual injury. I am glad that it is possible to demonstrate her before subjecting her to operative interference. I hope later to show you the result of operation. One reason for showing her to-night, was the hope that I might hear your suggestions as to what procedures had best be undertaken for her relief and what ultimate results might be expected to follow adequate treatment.

This young lady is 18 years old, has been married for one year, and during the past five years has been a professional toe dancer, that is, a ballet dancer. Five months ago she neglected upon one occasion to put rosin on her dancing shoes and as a consequence slipped, injuring her left knee. She says that her foot slipped outward and backward from under her. Despite the pain, she was able to continue her performances for two weeks longer. At times, particularly at night, the pain in her knee was very great. I might say by way of parenthesis that these gymnasts, like football players, become very largely indifferent to pain as we ordinarily understand it. At the end of two weeks, her knee being very much swollen, she was taken to a hospital in New York. Here the knee was aspirated, constant pressure in the form of an elastic bandage applied and ice bags kept constantly upon the joint. No attempt was made to straighten the leg or to immobilize the joint. Subsequently she was subjected to rather vigorous and exceedingly painful passive motion. After seven weeks, being but little, if any, improved, she went home. For eight weeks she lay in bed without medical assistance. Since then she has got about with her knee flexed as you see, to an angle of 40 degrees.

She has been referred to me by a colleague, asking me to do whatever can be done for her at this stage.

Physical Examination: The joint is not hotter than its fellow. There is no redness, no tenderness, no swelling. Bone tenderness, which might be elicited by deep pressure, is absent. There is no muscular spasm, nor is there any apparent atrophy of the muscles of the thigh. While the joint is immobile, attempts at forced passive motion cause pain.

We have to think, of course, of an anchylosis, which is more likely to be fibrous than bony and is probably secondary to an injury. The question is, however, are we dealing with a condition wholly the result of a traumatism or is there some form of chronic inflammation engrafted upon a previous injury. We have to think of an infectious arthritis, such as may follow diseased tonsils, etc., of a tuberculous condition, of a possible gonorrheal causation, of lues. Clinically, I am convinced that it is due to none of these, though I can not delay you now with the details of a differential diagnosis. Of course, I shall verify my clinical findings by the various laboratory tests when she is in the hospital. The X-ray pictures which I now show you only give us evidence that there is no destruction of the joint surfaces.

Assuming that we are dealing with the result of an injury, a moment's recollection of the anatomy of the knee joint may enable us to reconstruct the injury which she probably sustained and suggest the pathological conditions which must be present within the joint.

The knee you will recall is an imperfect hinge joint; it being also capable of some rotation. Extension and flexion occur between the femur and the semilunar cartilages; while rotation occurs between the semilunars and the tibia. They are attached loosely (and at their anterior margins very insecurely) to the tibia by the so-called coronary ligaments. Each semilunar is wedged in between the tibia and femur and assists the lateral ligament of the opposite side to maintain the stability of the joint.

The internal semilunar, unlike the external, is intimately attached to the lateral ligaments, so that it is almost a part of it. The latter forms the inner support of the joint, the capsule being a negligible factor.

Now any injury which stretches the internal lateral ligament must exert a breaking strain upon the internal semilunar or its attachments.

If now we consider the manner in which the girl wrenched her leg—she said it slipped outward and backward from under her, which, speaking exactly means the knee was flexed, the leg abducted and the femur rotated in—it is at once apparent that this action must have thrown the greatest breaking strain upon the internal lateral ligament and the weak anterior attachment of the internal semilunar. As a matter of fact, this is recognized as the manner in which a majority of injuries to the internal semilunar occur. Frequently the torn cartilage slips into the joint. There is no locking, but a slight check on full extension of the joint. Treatment should be directed toward returning the carti-